

are mentioned in the one and not in the other; and it is evident that the table was prepared after the completion of the rest of the book, and with little or no reference to it. Even in some of the articles themselves we find evident traces of the same confusion of ideas,—a glaring instance of which is exhibited by the notices on the *Macropidæ* and *Marsupialia*: in the former the whole of the Marsupials are referred to the family *Macropidæ*, and placed, in accordance with Dr. Gray's views, amongst the *Feræ* (in the table); whilst in the latter the *Macropidæ* constitute only one family of the *Marsupialia*.

We trust that should the work come to a second edition, Dr. Baird will endeavour to remove the causes of these objections, and thus furnish the public with what is much wanted,—a reliable work of reference on general Natural History. The publisher has evidently done his part well;—for a cheap work, the volume is well printed; the illustrations are numerous, and many of them new; and a useful map of the geographical distribution of some of the principal forms of animals is attached to it.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

January 26, 1858.—P. L. Sclater, Esq., F.L.S., in the Chair.

NOTICE OF A NEW GENUS OF UROPELTIDÆ FROM CEYLON, IN THE COLLECTION OF THE BRITISH MUSEUM. BY DR. J. E. GRAY, F.R.S., V.P.Z. AND ENT. SOC. ETC.

In examining the reptiles recently acquired in the British Museum, Mr. Edward Gerrard observed a Saurian from Ceylon, which he believed to be new. I have great pleasure in sending a description of it to the Society, and in naming it after Mr. Gerrard, the preparer of the osteological specimens and of the animals in spirits in the British Museum, who has a most extraordinary empirical knowledge of the osteology of the different vertebrated animals and of the species of reptiles and fish.

MITYLIA, n. g.

Head tapering in front, acute; rostral scale produced, compressed, acute, bluntly keeled above and below. Tail very short, subconical, rounded, covered with very close-set rough scales, each marked with two slight ridges of small asperities, with a central terminal rough oblong plate furnished with a perpendicular blunt keel; subcaudal shields in five rows, central series rather wider, six-sided; vent with two shields in front, and one in front of them between their bases.

MITYLIA GERRARDI.

Black; sides with a series of short white perpendicular bands; underside white, with a black spot in the middle of each scale, a

white oblong four-sided spot over the base of the caudal rugosity ; subcaudal scales few, with a small black spot in the centre of each.

Hab. Ceylon.

The form of the head agrees with the genus *Rhinophis* of Wagler ; but it differs from that genus in the shortness, and especially in the structure, of the caudal shield, which, in that genus, is formed of a single horny conical plate.

NOTICE OF THE BOSCH VARK (*POTAMOCHÆRUS AFRICANUS*),
LIVING IN THE GARDENS OF THE SOCIETY. BY DR. J. E.
GRAY, F.R.S., V.P.Z.S., ETC.

It was with great pleasure I was able to examine a living specimen of the *Bosch Vark* from the Cape of Good Hope, as some zoologists who had lived at the Cape had expressed to me a doubt as to the distinctness of the Painted Pig of the Camaroons from the *Bosch Vark* of the Cape, which they informed me is apt to vary in colouring, being sometimes fulvous.

Any one who examines the two living animals as they are now placed, in two paddocks side by side, in the Gardens, must at once be satisfied of the distinctness of the species of the two animals, quite independent of any variation that may occur in the ground colour of the individuals, and at the same time be convinced of their distinctness from the other Pigs and of their alliance to each other. Their differences may be thus stated in parallel columns :—

P. AFRICANUS, S. Africa.

The hair very long, blackish.

The nuchal crest very large, bushy, and extending over the shoulder.

Tail slender, placed rather high up.

The ears moderate, rather broad, with a small pencil at the tip.

P. PENICILLATUS, W. Africa.

The hair short, adpressed, deep red.

The nuchal crest small, low, white, forming a narrow line.

Tail very thick, placed very high up in the haunches.

The ears large, elongate, narrow, with a large terminal pencil.

These descriptions were taken at the same time of the year.

The two sexes of the two species are similarly coloured and agree in the above characters. There are also several other distinctive characters not so easily described.

February 9, 1858.—Dr. Gray, F.R.S., V.P., in the Chair.

Mr. Gould exhibited to the Meeting British specimens of the *Motacilla flava* of Ray, which had been shot by Mr. Thirtle of Lowestoft, to whom Mr. Gould was indebted for the following note as to its occurrence in that part of England :—

“ In February 1855, at Lowestoft there were to be seen on a large extent of waste grass land called the Denes, from 70 to 80 Yellow

Wagtails, which is a very uncommon occurrence, for we seldom have more than two or three pairs during the whole summer, and last summer (viz. 1857) I did not see one, although I looked for them several times.

“The birds named as above in 1855 were to be seen from about the 12th of February until the latter end of March. On the 14th of February I observed amongst them a Grey-headed Wagtail, and immediately went home for my gun, and I shot it and preserved the same: the head was only partially grey. The next day I killed a better specimen; and within a fortnight from killing the first, I obtained seven specimens in all, they being all male birds. I have no doubt that there were females with them, but I could not make them out from the Yellow Wagtails.

“The last killed were in the best plumage.

“During the time these birds were on the Denes the wind was blowing from the north-east, with bright sunny days; and the wind had been blowing from the same quarter from about Sept. 20th, 1854, and continued to do so until April 13th, 1855, not having any other direction for twenty-four hours during the whole time.

“I know only of two instances of the Grey-headed Wagtail being killed in this locality—one male in the last week of May 1851, and a male in May 1852: this was with a female.

“JAMES THIRTLE,

“*Bird Preserver, &c., Lowestoft.*”

Mr. Gould also called the attention of the Meeting to three beautiful specimens of Steller's Duck, which had been brought for exhibition by Mr. Stevens. Mr. Gould remarked, that although this species was a native of high northern regions, even to within the Arctic circle, it had been more than once killed in England. The bird certainly belongs to the family of the true diving ducks, of which the King and the Eider may be considered typical examples, and with these it has usually been associated by ornithologists; but the female differs remarkably from the females of those species in possessing a well-marked speculum on the wing, and the bill on examination will be found to differ in form, approaching nearly to that of the Smew (genus *Mergellus*), or perhaps still more nearly to that of *Merganetta*; but it is not precisely like that organ in either of those genera, and Mr. Gould therefore considered that Mr. G. R. Gray had very properly made it the type of a new genus, *Eniconetta*.

ON THE CHARACTERS OF FOUR SPECIES OF BATS INHABITING EUROPE AND ASIA, AND THE DESCRIPTION OF A NEW SPECIES OF VESPERTILIO INHABITING MADAGASCAR. BY ROBERT F. TOMES.

One of the most beautiful of the Bat kind is the *Vespertilio pictus* of Pallas. Like many of its congeners, it has been abundantly supplied with titles. One of these is *Vesp. Kerivoula*, given to it by Boddaert.

Dr. Gray having perceived that it possessed some peculiarities

which entitled it to further consideration, and to still further distinction, proposed to elevate it to the rank of a distinct genus, and employed the rejected name given to it by Boddaert by which to designate the new genus.

In the 'Annals and Magazine of Natural History,' vol. x., Dr. Gray made it the type of his genus *Kerivoula*, and associated with it several other species which he considered as representatives also of the new genus. Without going at length into the details of the examination which have led me to make use of the generic name above noticed, I may mention, that throughout the present communication, whenever I have occasion to speak of the species, it will be under the name of *Kerivoula picta*. But whilst I adopt this name for the species, I reject most of the associates provided for it.

The great beauty of the *Kerivoula picta* consists in its bright rust-coloured fur, and in its pied orange-and-black membranes. But there is another species which in respect of colour greatly resembles it, indeed far surpasses it. It is a native of China, and the specimen from which the illustration accompanying the present paper was taken, was presented to the British Museum by Mr. Fortune, its precise locality being Shanghai.

At the time the illustration was executed, I supposed, from the extraordinary richness of its colour, that it could not be a known or described species, and I had proposed to give it the name of *Vesp. rufo-niger*. A careful examination, however, of specimens of *Vesp. formosa* in the British and East India Company's Museums has shown me that it differs from that species chiefly in the intensity of the colour of the fur and membranes.

The examination of these examples led further to the inspection of the *Vesp. rufo-pictus* of Waterhouse, and again to some other species possessed of similar forms, but not gifted with the beauty of colour observed in those mentioned above.

It will be the purpose of this communication to point out these species, and to endeavour to show that none are referable to the genus *Kerivoula* (supposing it to be typified by the *Kerivoula picta*), in which some of them have been placed by Dr. Gray.

In general form the examples of this group—scarcely of sub-generic importance—bear some resemblance to the common *Vesp. murinus* of Europe. They all have a somewhat thick though not broad muzzle, and a crown but slightly raised above the level of the face; nostrils which are removed from each other by only a moderate interval, and that interval not emarginate in the specimens preserved in spirit, although very slightly so in those which are dried. The ears are in all the species more or less ovoid, and deeply and evenly hollowed or scooped out about the middle of the outer margin, as in the *Vesp. emarginatus* of Europe. The tragus is rather long, nearly straight, and diminishes evenly to an acute point. The membranes of the wings extend to the base of the toes, and the latter are much longer than the remaining part of the foot; and as if for the sake of uniformity, the terminal phalange of the thumb is much longer than the basal one*.

* The great length of the toes in relation to the length of the foot depends

The fur is everywhere thick and *cottony*, and is either bicoloured or tricoloured, with a tendency to spread on to the upper surface of the interfemoral membrane.

At present I have not had the opportunity of examining the cranium of either of the species, but am able to observe in the specimens in spirit and in those in skin, that the front teeth are of considerable substance in relation to their length, and that the upper incisors are placed in pairs, the pairs being separated from the canines by a considerable interval on each side, and from each other by a central interspace.

From the *Kerivoula picta*, and a few more allied species, this group differs remarkably in not having the top of the head elevated, in having the muzzle much thicker relatively, in the greatly inferior development of the ear-conch, and in several other minor details. However, it agrees with *Kerivoula* in the form of the tragus, and in some measure in the texture of the fur.

1. VESPERTILIO EMARGINATUS, Geoff.

V. emarginatus, Geoff. Ann. du Mus. t. viii. p. 198. pl. 46 & 48, 1806; Desm. Mam. p. 140, 1820; Millet, Faun. de Maine et Loire, t. i. p. 10, 1828; Fisch. Synop. Mam. p. 105, 1829; Bonap. Fauna Italica, i. 1832-42; Temm. Mon. ii. p. 190. pl. 51, 1835-41; Hollandre, Faune de la Moselle, p. 6, 1836; De Selys-Longch. Etud. Micromamm. p. 139, 1839; Faune Belge, pp. 1, 20 & 300. pl. 2. f. 4, 1842; Schinz, Europ. Fauna, i. p. 15, 1840; Synop. Mamm. i. p. 154, 1844.

Although the present well-marked species is cancelled from the European list by MM. Keyserling and Blasius, it is certainly a perfectly distinct and easily recognizable species, and not uncommon in several localities on the continent of Europe; but does not I believe occur in the British Islands. I have seen and examined specimens in the Museums of Leyden and Paris; in the latter, the type specimens from Charlemont and Abbeville, together with others collected by M. de Selys-Longchamps in Belgium; but I sought in vain for the specimen which M. Brongniart obtained near Dover. I believe that it was merely an old female of *V. mystacinus*; and perhaps from its cranium the illustration was taken which accompanies the description given by M. Geoffroy. At any rate that figure represents with tolerable accuracy the cranium of *V. mystacinus*, and is obviously too small for the *V. emarginatus*, as well as being too

very much on the elongation of the phalange next to the one bearing the claw; and it is the corresponding phalange of the thumb that is so much the longest. It would appear worthy of inquiry whether the corresponding phalanges of the fingers are relatively longer. This I do not find to be absolutely the case, although in *Miniopterus* reversed proportions of the comparative length of the toes with the remaining part of the foot take place, accompanied by corresponding reversed proportions in the length of the phalanges of the fingers. Thus the toes are short, and the phalanges of the fingers which answer to them, equally short; in the present group the toes are long, and the joint of the thumb which corresponds, elongated in accordance with them; but the wing-joints exhibit no such relative proportions.

much inflated. I arrived at this conclusion, having before me the plate and the type specimens.

I cannot learn that this species has been met with, excepting on the continent of Europe. Whilst many other European species occur not only over the whole of Europe, but also in Madeira, the Mediterranean shores of Africa, and even as far in Africa as Lake Ngami, the present one appears to be confined to France, Belgium, Holland, and the environs of Rome.

The following description has been taken from the specimens in the Paris Museum:—

Muzzle rather long, thick in a vertical direction, but not broad; top of the head very slightly elevated; nostrils small, near together; ears of medium size, ovoid, with a distinct and regular notch near the middle of their outer margins; tragus narrow and tapering to an acute point, which is directed outwards; its outer margin has a notch near the base.

Wing-membranes extending to the base of the toes; the latter longer than the remaining part of the foot; thumb with the free portion much longer than that which is engaged in the membrane.

The fur of the forehead, which is very thick, extends uninterruptedly to halfway between the end of the nose and the eyes; all the side of the face from the root of the ear to the snout is naked, with the exception of a tuft of stiff hairs in front of the eye and a moustache on the upper lip. The ears are a little hairy at the base of their hinder surface, and the fur of the back encroaches a little on the interfemoral membrane.

Everywhere the fur is very thick, soft, and *cottony*, with very little gloss. That of the upper parts is tricoloured, and that of the under surface bicoloured.

On the top of the head and the whole of the back it is blackish brown at the base for a fourth of its length, succeeded by yellowish buff, and tipped with light rust-colour, the latter prevailing most on the shoulders and on the interfemoral membrane. All the under parts have the fur dusky at the base for half its length, the remainder being pale buff, and it is so thick and close as to appear wholly of the latter colour unless it be moved.

Individuals vary considerably in the hue of the rust-coloured and buff portions of the fur, so that their general appearance may be either light reddish buff-colour, or a medium brown; but in either case the bicoloured and tricoloured character of the fur is maintained.

The specimen of *V. emarginatus*, which formed part of the Italian collection of the late Prince C. L. Bonaparte, having been presented by him to me during a stay in Paris in the spring of 1857, I am enabled to correct an error into which I had fallen, with some other zoologists, in regarding it as referable to *V. Nattereri*. It is unquestionably the *V. emarginatus* of Geoffroy. This specimen, preserved as a skeleton, but a good deal injured, supplies the following details respecting the dentition* :—

$$\text{In. } \frac{2-2}{6}; \text{ Can. } \frac{1-1}{1-1}; \text{ P. M. } \frac{1-1}{3-3}; \text{ M. } \frac{3-3}{3-3} = \frac{14}{20}.$$

* It may not be amiss to record here the exact condition of the specimens of

The dental series of the upper jaw when seen from below presents two straight and nearly parallel lines, the space between them being closed across the front opening by the transverse position of the incisors. They are so placed as to occupy nearly all the opening. Seen laterally they are nearly vertical; but when viewed in front, they slope so much inwards that the points of the inner ones nearly touch each other, and thus fill up nearly the whole of the interval between the two canines. The space between them and the canines is very small. The inner ones are rather large and deeply forked; the outer ones smaller and conical. The canines are short and stout, angular, and somewhat pointed. All the remaining teeth in the upper jaw are of the form common to nearly all the species of *Vespertilionidæ*.

The lower incisors are small, close together, and trilobed; the canines short and rather stout; and the three following teeth conical and increasing in size, the one next to the true molars being considerably larger than the two others, which are nearly equal. The molars present nothing remarkable in their form.

The following dimensions have been taken from three specimens in the Paris collection,—one from Charlemont, one from Abbeville, where it was collected by M. Baillon, and the third from a specimen obtained by M. Hollandre at Metz.

	1.		2.		3.	
	''	'''	''	'''	''	'''
Length of the head and body ..	2	10	2	9	2	8
— of the tail	1	3	1	3½	1	2½
— of the head	0	9	0	8½	0	9
— of the ears	0	6	0	6½	0	6½
— of the tragus	0	3½	0	3½	0	4
— of the fore-arm	1	5½	1	5½	1	5
— of the longest finger ..	2	6	2	7	2	6
— of the fourth finger...	2	0	2	0	2	1
— of the thumb	0	3½	0	3½	0	3½
— of the foot and claws ..	0	4	0	4	0	4
Expanse of wings	10	6	10	0	9	10

2. VESPERTILIO FORMOSUS, Hodgs.

V. formosus, Hodgs. Journ. As. Soc. Bengal, iv. p. 700, 1835.

Kerivoula formosa, Gray, Cat. Mam. Brit. Mus. p. 27, 1843;

Chiroptera presented by Prince Bonaparte, because they are the types of his descriptions in the 'Fauna Italica.' The species which I received were as follow:—*Vesp. emarginatus*, *V. Aristippe*, *V. vispistrellus*, *V. Cappacini*, *V. miniopterus*, *V. Ursinii*, *Noctula leucippe*, *Pipistrellus Savii*?, *P. noctula*, *P. alcythoe*, *Plecotus auritus*, and *Rhinolophus ferrum-equinum*, the names here given being those attached to the specimens. It appears that they had been prepared as skeletons, with the membranes and ears left attached, and had then been expanded on pieces of card-board and varnished, the skin and fur having been also attached to the card. In this state they had been placed in a portfolio prepared for their reception, which previously to passing into my hands had been subjected to sufficient pressure to crush and very much injure the specimens, the crushed parts being in some of them lost.

Cat. Mam. and Birds of Nepaul, presented by B. H. Hodgson, in Brit. Mus. p. 4, 1846.

Vesp. (Kerivoula) formosa, Horsf. Cat. Mam. Mus. E. Ind. Comp. p. 40, 1851.

V. rufo-niger?, Tomes, MSS.

Mr. Hodgson thus describes this species:—"Entirely of a bright, soft, ruddy yellow, with the digital membranes triangularly indented, blackish. Head conical; face sharp; muzzle and lips confluentlly nudish; the former anteally grooved, not above; the outer and inner ears acutely pointed, moderate, less than the head; teeth $\frac{2-2}{6}$, $\frac{1-1}{1-1}$, $\frac{6-6}{6-6}$; snout to rump $2\frac{1}{2}$ inches; tail 2; expanse $12\frac{1}{2}$.

"Nasal bones slightly convexed in their length, and unite easily with a low forehead."

The following is the description of the specimen deposited in the British Museum by Mr. Hodgson. The specimen is preserved in spirit; but the skull having been removed, renders the description less perfect than might have been wished:—

Nostrils rather small and approximate. Feet rather large, the toes taking up fully two-thirds of their entire length. Wing-membranes extending barely to the base of the toes. Thumb with the basal phalange short, the one between it and the small one bearing the claw, taking up the greater part of its length. Tail-tip wholly enclosed in the interfemoral membrane.

Membranes (when wet with spirit) translucent, and marked with reddish brown and dark brown, the latter occupying the triangular spaces between the digits, and the former appearing as narrow stripes on each side of all the bones of the wings—just as in *Kerivoula picta*.

Fur very thick, that of the under parts yellowish buff, that of the upper similar at the root and tipped with rust-colour.

The specimen included in Dr. Horsfield's 'Catalogue of the Mammalia contained in the Museum of the East India Company' affords the following particulars:—Muzzle rather produced, thick, but not broad; top of the head scarcely elevated above the line of the face; nostrils small, near together, opening sublaterally, and slightly tubular. Ears ovoid, emarginate at their outer margin; tragus long, slender, and tapering evenly to a moderately acute point, which is curved a little outwards. Wing-membranes extending to the base of the toes, barely; the feet large, the toes occupying fully two-thirds of their entire length. The basal joint of the thumb very short in relation to the length of the second.

Fur very thick and close, and *cottony* in texture; that of the upper parts yellow-buff, with the tips of the hairs conspicuously tipped with rust-colour; below, uniform yellow-buff.

The interfemoral membrane, the portions of membrane contiguous to the flanks, and all the parts in the immediate vicinity of the bones of the wings and legs, chestnut-coloured, all the remaining parts of the membrane being black-brown.

The following description has been taken from the specimen from Shanghai; and I may observe, that a specimen in my own collection, also from China (Kiang), is similar, but with the colours even brighter. As these examples differ from those already described in a few particulars only, save in colour, it will be necessary to mention merely these points of difference, and the remarkable colouring of the fur of this variety—if it is not a distinct species :—

Ears ovoid, nearly the length of the head, and more deeply and evenly notched near the middle of the outer margin than in the ordinary examples of *V. formosus*; tragus very narrow and tapering to a very acute point, curved a little outwards. The extreme tip of the tail free.

On all parts of the body the fur is thick and *cottony*, with very little gloss. That of the upper parts tricoloured, excepting on the head, where it is bicoloured. On the latter part it is buff at the base, tipped with very bright rufous; on the whole of the back it is blackish grey at the base, succeeded by buffy yellow, and finally tipped with bright rufous. The rufous colour is brightest on the head and shoulders, from which parts it becomes darker and less pure on approaching the rump. The hair which extends on to the base of the interfemoral membrane is unicoloured, and dark red-brown. On the whole of the under parts, the fur is bicoloured; that of the throat resembles that on the top of the head, being buffy yellow, tipped for about a fourth of its length with bright red. Along each side of the body, from the insertion of the humerus to the pubal region, it is similar to the throat; but the rufous colour occupies more than half the length of the fur. Along the middle of the belly it is dusky at the base, similarly tipped with a deep and brilliant rufous colour.

The membranes are very conspicuously marked with two colours, brown-red and black. The latter colour may be called the real colour of the wings; but a narrow space on each side of all the bones is of the former; of this brown-red colour also is the whole of the interfemoral membrane and the membrane between the index finger and the longest. Beneath the fore-arm, and from thence by the side of the body to the hinder limb, the red colour is of considerable breadth, attaining to as much as three-quarters of an inch. From this space it runs in dotted lines into the black colour of the wing, and produces great richness of appearance. The ears are red-brown, tipped and margined exteriorly with black. The feet also are black; but the legs and all the bones of the wing are of the same red colour as the contiguous membrane.

In the annexed table of dimensions, column No. 1 represents Mr. Hodgson's specimen in the British Museum, No. 2 the specimen in the East India Company's Museum, No. 3 the Shanghai specimen, and No. 4 the one from Kiang.

	No. 1.	No. 2.	No. 3.	No. 4.
Length of the head and body	2 10	2 4	2 9	
— of the tail	2 0	1 6	1 8	1 9
— of the head	0 9	0 7 $\frac{1}{2}$	0 8 $\frac{1}{2}$	
— of the ears	0 6	0 7	0 6	
— of the tragus	0 3 $\frac{1}{4}$	0 3 $\frac{1}{2}$		
— of the fore-arm	1 10	1 10	1 9 $\frac{1}{2}$	1 10
— of the longest finger	3 2	3 0	3 0	3 2
— of the fourth finger	2 6	2 8	2 6	2 7
— of the thumb	0 4 $\frac{1}{2}$	0 5	0 5	0 5
— of the tibia	0 5 $\frac{3}{4}$	0 6	0 5	0 5 $\frac{1}{2}$
— of the foot and claws	12 7	12 0	13 6	12 6

Although I have treated the Chinese specimens as varieties of the Indian species, I hold it by no means proved that my first impression was not the correct one. The differences may be thus summarily stated:—1. The ears of the Chinese examples are more deeply hollowed out exteriorly. 2. The tragus is more acute. 3. The tip of the tail is free. In the Indian specimens the ears are less strongly emarginate, the tragus is sub-acute at the tip, and the tail wholly enclosed in the membrane; at least it is so in the specimen in spirit. The great difference in colour may perhaps be due to the influence of climate.

Without a greater number of examples for examination, and especially without an investigation of their crania and dentition, it is difficult to decide with certainty whether this is merely a remarkable variety, or a distinct species. Should it however prove to be distinct, I propose for it the name I at first made use of to designate it, viz. *Vesp. rufo-niger*.

3. VESPERTILIO RUFO-PICTUS, Waterh.

Vesp. rufo-pictus, Waterh. P. Z. S. pt. 13. p. 8, 1845.

Kerivoula rufo-picta, Gray, Zool. Voy. Samar. no. 5, 1849.

The original specimen from which Mr. Waterhouse took his description having passed into my hands at the dispersion of the Museum of the Zoological Society, I have been enabled to examine it attentively, and to compare it with Mr. Hodgson's specimen of *V. formosus* in the British Museum, from which it at first sight appears to differ only in being a little larger. On more careful examination it proves to be quite an immature individual, so that if full-grown it would probably differ considerably in size from that species. Again, the number of the teeth appears to be different—different at least from the account given by Mr. Hodgson of the dentition of *V. formosus*. He says, "Teeth $\frac{2-2}{6}$, $\frac{1-1}{1-1}$, $\frac{6-6}{6-6}$," I can only detect $\frac{5-5}{5-5}$ molars in the specimen of *V. rufo-pictus*, of which two on each side, above and below, are false molars.

The face is rather long and somewhat obtuse, but not much broader laterally than it is thick in a vertical direction; the top of the head

very little elevated; the nostrils small and near together, with the space between them slightly depressed rather than emarginate. The glands of the upper lip do not approach very closely to the edge of the latter, but pass backwards over the eyes almost to the front margins of the ears, and leave a central longitudinal depression along the face, up the middle of which is a narrow raised ridge, producing, to use the words of Mr. Waterhouse, "two longitudinal grooves." The ears are very similarly shaped to those of *V. formosus*, but I think a little less emarginate. The tragus has a distinct tooth or lobe at its outer margin, close to the base, above which is a considerable indentation, succeeded by an obtuse angle, from which it passes in a straight line to the tip, which is tolerably acute. The inner margin is nearly straight. Both the ears and tragus, when examined by transmitted light, appear to be glandular in structure.

The feet are large; the toes occupying fully two-thirds of their entire length. The *os calcis* takes up two-thirds of the distance between the foot and the end of the tail; the latter wholly enclosed in the interfemoral membrane. The middle phalange of the thumb (as in all others of the group) long, the basal one short.

The fur on the top of the head is thick, but does not extend so near to the end of the nose as in *V. formosus*. On the space around the eyes are some irregular tufts of longish hairs, and the upper lips are furnished with moustaches of bristle-like hairs; and all the upper surface of the snout, from above the nostrils to the fur of the forehead, is similarly studded with short bristly hairs.

The fur on the back extends on to the base of the interfemoral membrane for a fourth of its length, and along the tibiæ to the upper surface of the feet, the outer toe* being furnished with short bristly hairs on the whole of its upper surface, and the others hairy only on their terminal and subterminal phalanges. The interfemoral membrane has a series of similar short hairs on the whole of its hinder margin.

On all the upper parts the fur is close, firm in texture, and bicoloured; light dusky grey at the base, with the tips yellowish buff. Below, it appears to be unicoloured, buffy ash, with a strong tinge of yellow about the axilla.

It is probable that the fur would be more markedly bicoloured in older examples, as we see in other species that the colours of young specimens are much less distinct than in older ones.

The membranes are marked precisely as in *V. formosus*, and require no further notice.

Dentition.—In. $\frac{2-2}{6}$, Can. $\frac{1-1}{1-1}$, Premol. $\frac{2-2}{2-2}$, Mol. $\frac{3-3}{3-3} = \frac{16}{18}$.

Dimensions:—

Length of the head and body	2	6
——— of the tail	2	1

* The so-called outer toe of a Bat, with the members extended, corresponds with the inner toe of other Mammalia.

Length of the head	0	10
—— of the ears	0	6
Breadth of ears	0	5
Length of the tragus	0	3 $\frac{3}{4}$
—— of the fore-arm	1	11 $\frac{1}{2}$
—— of the longest finger	3	2
—— of the fourth finger	2	9
—— of the thumb	0	5
—— of the tibia	1	0
—— of the foot and claws	0	6
—— of the os calcis	0	11 $\frac{1}{2}$
Expanse of wings	13	2

4. VESPERTILIO PEARSONII, Horsf.

Lasiurus Pearsonii, Horsf. Cat. Mam. Mus. E. Ind. Comp. p. 36, 1851; Blyth, Journ. As. Soc. Bengal, no. 6. 1851, p. 524.

This is much the largest species of the group, and probably if sufficiently examined would prove to be also the most characteristic. But at present I have only had the opportunity of examining three specimens, all in the state of skin; viz. the type of Dr. Horsfield's description, another in the same collection from Nepal, presented by Mr. Hodgson, and the third in the British Museum, from Amboyna. From these examples the following description has been taken, which will be followed by remarks on their individual differences.

The top of the head is rather flat, scarcely so much elevated as in *V. murinus*; the muzzle is also rather broad and obtuse, as in that species, and the nostrils have nearly the same form and proportions. The ears are as broad as they are high, very much rounded at the end, and with a distinct and evenly-defined notch, *scooped* in their external margin. They resemble the same parts in *V. emarginatus*, but are much broader in relation to their length, and less deeply hollowed out externally. As in that species they are thickly dotted with fine glandular spots. The tragus is narrow, and tapers to an acute point, with a slight outward curvature, and it is furnished with a projecting angular point at its outer edge near the base. It is rather more than half the length of the ear.

The wing-membranes extend to the base of the toes, and the latter are fully two-thirds of the entire length of the foot. The claws are strong and hooked. The thumb is very long, and its claw also large and hooked, more so relatively than in any of its congeners. The tip of the tail is free from the membrane.

The upper canines are very short, stout, and conical, with a blunt inner lobe; the lower ones are also stout and short, as are also the incisors, above and below.

The upper surface of the interfemoral membrane is more or less covered with hair, varying somewhat in different individuals, and the portions of the wing-membranes contiguous to the sides of the

back are also hairy. Beneath, the membranes are hairy only in close proximity to the vent and lower part of the body.

In texture the fur is soft, thick, and *cottony*, and rather long, that on the middle of the back being as much as 5 lines in length.

On the upper parts the fur is tricoloured, as in the other members of the group. That of the back has the base dusky, succeeded by yellowish grey for the greater part of its length, and the remainder rufous brown, with the exception of the extreme tips of the hairs, which in the type specimens are paler and shining; the general colour of the fur of the upper parts, when undisturbed, being a dull rufous brown, excepting that on the interfemoral membrane, which is of a somewhat brighter rufous tint, and uniform in colour for its whole length.

The general tint of the under parts is palish brown, each hair being reddish brown for the greater part of its length, with shining tips of the same colour, but paler. The shining tips are most observable on the breast, and least so on the pubes.

Mr. Hodgson's specimen differs only from the type specimen in the absence of the shining tips to the fur. In both of these the membranes are reddish brown, with *the portions contiguous to the bones of the wings somewhat diaphanous, and corresponding pretty accurately with the red parts in V. formosus.*

The specimen from Amboyna differs so considerably in colour, that it will be well to give a description of it separately.

The interfemoral membrane has about twenty-four strongly marked transverse dotted lines; and about ten or twelve similar ones may be seen on the base of the wings, parallel to the body.

On the whole of its upper surface the interfemoral membrane is clothed with hairs, but not very thickly, excepting on the *os calcis*, which is thickly fringed, as are also the feet; the membrane contiguous to the back is also similarly furnished with hair. The under surface of the membranes contiguous to the body, *i. e.* from the axilla, by the flanks and around the pubes, is also clothed with hairs, which thin off gradually, and are lost at the distance of a little more than half an inch from the body.

The whole of the fur is of the same peculiar texture observed in the other examples, fine, and of medium length. On all the under parts of the body it is purple-brown at the base, for a third of its length, succeeded by purplish white, and tipped with bright rust-colour. That which extends on to the upper surface of the membranes is of a uniform rust-colour, and the face is wholly rust-coloured. Beneath, all the fur is of a brownish-white colour, tinged with rufous on the shoulders.

The membranes are dark reddish brown, the interfemoral, and those parts which are red in *V. formosus*, being of a lighter and redder tint, but not so well marked as in that species.

The following are the dimensions of these examples; 1. the type specimen of Dr. Horsfield, 2. Mr. Hodgson's specimen, and 3. the one from Amboyna :—

	1.	2.	3.
Length of the head and body ..	3 1"	2 6"	1 6"
—— of the tail	1 8	0 7?	1 4½
—— of the head	0 11	0 10?	0 6½
—— of the ears	0 6	0 5½	0 5½
Breadth of the ears	0 6	0 5½	0 3¼
Length of the tragus	0 4	0 3½	0 3
—— of the fore-arm	1 10	1 8	1 5
—— of the longest finger ..	2 8	3 4	2 2½
—— of the fourth finger ...	2 8	2 7	1 10
—— of the tibia	0 11	0 9	0 7
—— of the thumb	0 7	0 6	
—— of the foot and claws ..	0 5	0 5	0 4½
—— of the <i>os calcis</i>	0 9	0 8	
Expanse of wings.....	13 7	13 4	9 3

VESPERTILIO MADAGASCARIENSIS, n. s.

The species which I have thus named, although not appertaining to the restricted group which forms the subject of the present paper, is nevertheless a true *Vespertilio*. It is properly a member of the restricted group which is represented by *V. mystacinus*, *V. polythrix*, *V. Chilensis*, *V. ruber*, *V. Isidori*, *V. Hilairii*, *V. parvulus*, *V. trilatitius* (Temm. not Horsf.), and some others. As the first of these is the best-known species, I shall take it as a standard for comparison, and at the same time refer to any points of greater resemblance which the new species may have to others less known.

It is of about the same size as *V. Daubentonii*, but differs from it in other respects considerably. The top of the head is somewhat elevated, as in *V. mystacinus*, and, as in that species, the muzzle is rather short and pointed. The nostrils are small, near together, sublateral in their direction, and the space between them emarginate. The ears are of medium length, rather broadly ovoid, and deeply emarginate about the middle of the outer margin; but the notch has not the appearance of being *scooped* out, as in the species previously described in the present paper. It is in fact just as in *V. mystacinus*, but deeper. The tragus is about half the length of the ear, narrow and pointed, and curving slightly outwards. It has a prominent angle on its outer margin near to the base.

The thumb is small, and the two visible phalanges are of nearly equal length. The wings are proportioned much as in *V. mystacinus*. The feet are relatively rather large as compared with those of that species, but much less so than in *V. Daubentonii*, and the wing-membranes extend nearly to the base of the toes, the latter being of nearly equal length. The extreme tip of the tail is free.

The face is densely hairy, only the end of the nose and a small space between the eyes and ears being naked. On the upper lip are moustaches of long hair, and there are a few similar long hairs projecting from the chin. The ears are somewhat hairy on their outer surfaces, at the base only. All the membranes are naked.

The fur is thick and soft, with very little lustre, in texture very like that of *V. Chilensis*. That of the upper parts is nearly unicoloured, of a deepish ferruginous hue, a little darker at the root than at the tip. Below, it is bicoloured, dark brown at the base, tipped with greyish brown, paler and unicoloured on the pubes.

The dentition has not been examined.

Length of the head and body, about	2	10
———— of the tail	1	5 $\frac{1}{2}$
———— of the head	0	7 $\frac{3}{4}$
———— of the ears	0	5
———— of the tragus	0	3
———— of the fore-arm	1	5
———— of the longest finger	2	7
———— of the fourth finger	1	10
———— of the thumb	0	3
———— of the tibia	0	7 $\frac{3}{4}$
———— of the foot and claws	0	4 $\frac{1}{4}$
Expanse of wings	10	2

BOTANICAL SOCIETY OF EDINBURGH.

March 11, 1858.—Professor Balfour, V.P., in the Chair.

The following papers were read:—

1. “A few Remarks on the Application of Photography to Botanical Purposes,” by Charles J. Burnett, Esq.

2. “Critical Remarks on the genus *Orthotrichum* (Part II.),” by Dr. Benjamin Carrington.

In this second part of his paper, Dr. Carrington gave a detailed description of the various British species of *Orthotrichum*, and entered upon a discussion of their specific distinctions, especially with reference to those species that have of late years been added to the British flora.

3. “Recent Botanical Intelligence,” by Professor Balfour.

I. *Gutta Percha of Surinam*.—Prof. Bleckrod of the Delft Academy has recently given a notice of the Gutta Percha of Surinam. The Professor states that Dutch Guiana can supply gutta percha. The Dutch Government took measures to transplant the *Isonandra Gutta* and cultivate it in Guiana; but they have lately discovered in that country a species of *Sapota*, to which Blume gives the name of *Sapota Mulleri*, which yields a juice in every way equal to that of the *Isonandra*. It is probable that other trees of the same natural order may be found to yield a similar product. *Achras Sapota*, the fruit of which is known in the West Indies as “Neesberry,” also yields a milky juice like gutta percha. The *Sapota Mulleri* of Blume is probably the tree called “Bullet-tree” by the English, and its wood is known as “horse-flesh.” It is a tall tree, yielding in summer a large quantity of milky juice. It appears that, under the name of common Boerowe or Bullet-tree, there have been confounded—